

INTERNATIONAL SEARCH REPORT

International Application No
PCT/DK2004/000456

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12P19/16

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C12P C12N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, EMBASE, WPI Data, PAJ, Sequence Search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	WO 03/068976 A (VIKSOE-NIELSEN ANDERS ; PEDERSEN SVEN (DK); NOVOZYMES AS (DK); OLSEN H) 21 August 2003 (2003-08-21) the whole document -----	1-27
X	WO 02/068589 A (DIVERSA CORPORATION) 6 September 2002 (2002-09-06) SEQ ID NO:52, 63figure 16 -----	25-27
Y	EP 0 171 218 A (GENENCOR INC) 12 February 1986 (1986-02-12) cited in the application the whole document -----	1-24
Y	US 4 009 074 A (WALON RAOUL GUILLAUME PHILIPPE) 22 February 1977 (1977-02-22) cited in the application the whole document -----	1-24
	-/-	

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the International filing date
- "L" document which may throw doubts on priority, claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
9 September 2004	21/09/2004
Name and mailing address of the ISA European Patent Office, P.B. 5818 Palentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Schmitz, T

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>ITKOR P ET AL: "NUCLEOTIDE SEQUENCE OF THE RAW-STRACH-DIGESTING AMYLASE GENE FROM BACILLUS SP. B1018 AND ITS STRONG HOMOLOGY TO THE CYCLODEXTRIN GLUCANOTRANSFERASE GENES"</p> <p>BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, ACADEMIC PRESS INC. ORLANDO, FL, US, vol. 166, no. 2, 30 January 1990 (1990-01-30), pages 630-636, XP000085858</p> <p>ISSN: 0006-291X the whole document</p> <p>-----</p>	1-24
Y	<p>DEL-RIO G ET AL: "Did cyclodextrin glycosyltransferases evolve from alpha-amylases?"</p> <p>FEBS LETTERS, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 416, no. 2, 1997, pages 221-224, XP002256835</p> <p>ISSN: 0014-5793 abstract page 224</p> <p>-----</p>	1-24
A	<p>US 4 316 956 A (LUETZEN NIELS W) 23 February 1982 (1982-02-23) the whole document</p> <p>-----</p>	
A	<p>JANECEK STEFAN ET AL: "Relation between domain evolution, specificity, and taxonomy of the alpha-amylase family members containing a C-terminal starch-binding domain."</p> <p>EUROPEAN JOURNAL OF BIOCHEMISTRY, vol. 270, no. 4, 20 February 2003 (2003-02-20), pages 635-645, XP002255837</p> <p>ISSN: 0014-2956 abstract page 636, left-hand column, line 15 - line 45 table 2 figure 4 page 641, left-hand column, last paragraph - right-hand column, last paragraph</p> <p>-----</p> <p align="center">-/-</p>	

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C(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>SOUTHALL S M ET AL: "The starch-binding domain from glucoamylase disrupts the structure of starch" FEBS LETTERS, ELSEVIER SCIENCE PUBLISHERS, AMSTERDAM, NL, vol. 447, no. 1, 19 March 1999 (1999-03-19), pages 58-60, XP004259394 ISSN: 0014-5793 the whole document</p> <p>-----</p>	
A	<p>PARK Y K ET AL: "ALCOHOL PRODUCTION FROM VARIOUS ENZYME CONVERTED STARCHES WITH OR WITHOUT COOKING" BIOTECHNOLOGY AND BIOENGINEERING, vol. 24, no. 2, 1982, pages 495-500, XP002255838 ISSN: 0006-3592 the whole document</p> <p>-----</p>	
A	<p>MACGREGOR E A ET AL: "RELATIONSHIP OF SEQUENCE AND STRUCTURE TO SPECIFICITY IN THE ALPHA-AMYLASE FAMILY OF ENZYMES" BIOCHIMICA ET BIOPHYSICA ACTA, AMSTERDAM, NL, vol. 1546, no. 1, 2001, pages 1-20, XP001008841 ISSN: 0006-3002 the whole document</p> <p>-----</p>	
A	<p>DATABASE SWALL 'Online! 1 November 1996 (1996-11-01), LIN, L. ET AL.: "alpha-amylase (EC 3.2.2.1)." XP002255839 retrieved from EBI Database accession no. Q59222 abstract</p> <p>-----</p>	
A	<p>KANEKO AKIHIRO ET AL: "Molecular cloning and determination of the nucleotide sequence of a gene encoding an acids-stable alpha-amylase from <i>Aspergillus kawachii</i>" JOURNAL OF FERMENTATION AND BIOENGINEERING, SOCIETY OF FERMENTATION TECHNOLOGY, JP, vol. 81, no. 4, 1996, pages 292-298, XP002256177 ISSN: 0922-338X the whole document</p> <p>-----</p>	

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Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the International application and necessary to the claimed invention, the international search was carried out on the basis of:
 - a. type of material
 - a sequence listing
 - table(s) related to the sequence listing
 - b. format of material
 - in written format
 - in computer readable form
 - c. time of filing/furnishing
 - contained in the International application as filed
 - filed together with the International application in computer readable form
 - furnished subsequently to this Authority for the purpose of search
2. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
3. Additional comments:

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Information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 03068976	A	21-08-2003	WO	03068976 A2	21-08-2003
WO 02068589	A	06-09-2002	CA	2438205 A1	06-09-2002
			CA	2438884 A1	06-09-2002
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			JP	7040939 B	10-05-1995
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			JP	6339375 A	13-12-1994
			NZ	212978 A	29-03-1989
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US 4316956	A	23-02-1982	BR	8100550 A	18-08-1981
			CA	1152914 A1	30-08-1983
			JP	1227445 C	31-08-1984
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			JP	58057154 B	19-12-1983
			SE	446741 B	06-10-1986
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			ZA	8100628 A	31-03-1982